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Abstract

Modern agricultural practices have become increasingly popular topics for news media outlets; thus, the growing scrutiny placed on production agriculture warrants a study of the images incorporated into television news stories of industry-related topics. Using a visual-rhetoric framework, the researchers conducted a survey of college students who were shown still images taken from a CBS Evening News broadcast about drug-resistant pathogens and their connection to antibiotic use in livestock. Participants were asked to identify the topic of the news story based on the images, to describe their affective response to that topic, and to identify the visual cues that led them to choose that topic. Content analysis revealed that no respondents correctly identified the topic of the story and that a majority aligned the images with animal mistreatment, slaughter, or welfare. Most respondents reported indifference or negative feelings about the images and topics. Based on the study, the researchers recommend further analysis of media imagery related to livestock production and increased surveillance of industry-focused stories.

Keywords

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Abstract

Modern agricultural practices have become increasingly popular topics for news media outlets; thus, the growing scrutiny placed on production agriculture warrants a study of the images incorporated into television news stories of industry-related topics. Using a visual-rhetoric framework, the researchers conducted a survey of college students who were shown still images taken from a *CBS Evening News* broadcast about drug-resistant pathogens and their connection to antibiotic use in livestock. Participants were asked to identify the topic of the news story based on the images, to describe their affective response to that topic, and to identify the visual cues that led them to choose that topic. Content analysis revealed that no respondents correctly identified the topic of the story and that a majority aligned the images with animal mistreatment, slaughter, or welfare. Most respondents reported indifference or negative feelings about the images and topics. Based on the study, the researchers recommend further analysis of media imagery related to livestock production and increased surveillance of industry-focused stories.

Keywords

Imagery, livestock, news, television, visual rhetoric

Introduction

Although America's agriculture industry has been credited with providing a safe, abundant food supply for its constituents, the volume and efficiency of its production methods have raised ethical questions related to the care of livestock. Animal-rights and -welfare organizations, armed with footage of animal mistreatment filmed on industrial "factory farms," have launched an attack on the American agriculture industry, airing what they deem the dark side of modern agriculture. Images of practices including confinement housing for laying hens and pregnant sows, and the slaughter of calves for veal, picked up and distributed by major news networks, have had a notable influence on the way in which Americans view the industry and producers providing their food and fiber (Nocera, 2008; Cima, 2009).

These videos, at their core, are textbook examples of visual rhetoric: images that prompt such strong emotional reactions that they are capable of overriding rational thought (Hill, 2004). With the amount of negative coverage of agricultural issues increasing (Laestadius, Lagasse, Smith, & Neff, 2012; Tonsor & Olynk, 2010), visual rhetoric provides agricultural communicators with a framework to study portrayals of the industry by respected mass media news outlets. To accomplish the development of a research agenda integrating visual rhetoric into agricultural communications scholarship, a thorough review of the existing literature is necessary.

Literature Review

Definitions of and Research in Visual Rhetoric

Visual rhetoric, or the persuasive use of symbols, expands upon a field traditionally associated with verbal communication: the creation of meaning and construction of arguments (Bulmer & Buchanan-Oliver, 2006). Rhetoric, once linked almost exclusively to words, now encompasses visual artifacts, the symbols that constitute a pervasive, non-discursive language that borrows from traditional methods and is used to persuade (Bulmer & Buchanan-Oliver, 2006; Foss, 2004; Hocks, 2003; Scott, 1994). ("Visual rhetoric" may also refer to the image or object generated by the use of visual symbols to communicate [Foss, 2004].) Students and practitioners may be taught to "read" this language and make critical assumptions about identity categories such as gender, age, and nationality (Hocks, 2003).

Foss (2004) identified three areas upon which researchers commonly focus: nature, function, and evaluation. Studying the "substantive and stylistic" nature of visual artifacts involves describing presented and suggested elements: Presented elements include an artifact's major physical attributes, including space, medium, and color; suggested elements are concepts, ideas, themes, and allusions viewers may infer from presented elements (Foss, 2004, p. 307). Visual artifacts also have specific functions, or actions they communicate, which are independent of—and not to be confused with—their intended purpose. Images may serve to memorialize an individual—like iconic images of John F. Kennedy—or encourage audiences to explore limitations (Foss, 2004). Finally, visual artifacts must be evaluated or assessed for their ability to accomplish their intended functions and the legitimacy or soundness of those functions (Foss, 2004).

Historically, the meanings behind visual representations have been affected by a number of factors, including the selection, emphasis, and framing of specific images (Allen, 1996). Radical and marginalized political factions have long utilized principles of visual rhetoric in their imagery, especially in times of political, social, and economic upheaval (Lumsden, 2010; Olson, 2007). Juxtaposition was a particular favorite among anti-unionist organizations, whose cartoons often featured a "David and Goliath" theme with monstrous union workers and comparatively weak-looking factory owners (Lumsden, 2010). The advent of photography, film, television, and the Internet in the past three centuries has inspired new scholarly examinations of "pictorial records, visual components of messages, and the culturally-shaped practices of viewing them" (Olson, 2007, p. 2).

Contemporary study of visual rhetoric focuses on the effects of advertising on audiences (Scott, 1994). Such rhetorical theory posits that "visual elements must be capable of representing concepts, abstractions, actions, metaphors, and modifiers, such that they can be used in the invention of a complex argument" through their arrangement and manner of delivery (Scott, 1994, p. 253).

Visual Rhetoric and the Depictive Rhetoric of News

Although audiences are constantly inundated with visual messages that attempt to persuade, they "hold different expectations and standards…for news and visuals intended to report information" (Allen, 1996, p. 88). "News" is differentiated from created "art," though news outlets are not above using visual elements, either altered or intact, to "disclose broad patterns of partisan engagement…and contemporaries' underlying ideologies" (Olson, 2007, p. 10). The impact of television news outlets' visual rhetoric is amplified by the credibility lent to reporters by symbols of authority (Blair, 2004; Abdulla, Garrison, Salwen, Driscoll, & Casey, 2002): Backdrops showing institutions of political power (the White House, Capitol Hill) "are visual rhetorical devices that render the

message conveyed more believable or persuasive" (Blair, 2004, p. 58).

"Image events," or staged opportunities for gathering powerful visual material (Edwards, 2004), are part of Osborn's (1986) concept of "depictive rhetoric…strategic pictures, verbal or nonverbal visualizations that linger in the collective memory of audiences as representative of their subjects" (p. 79). Anecdotal evidence has suggested that news sources have used depictive rhetoric since the advent of color photography: During FDR's presidency, *LOOK* magazine published photographs of Southern sharecroppers living in deplorable conditions, in spite of the farmer-friendly policies of Roosevelt's Farm Security Administration. The editor's call for photographs asked for "a fairly large number of pictures which show the worst conditions in the south," and the resulting photographs were clearly intended to shock audiences (Finnegan, 2004, p. 203).

Agriculture on Primetime Television News

In the past five years, primetime television news shows have received criticism for their coverage of issues facing production agriculture, including livestock husbandry and food processing. In 2012, meat company BPI sued ABC News for defamation over the program's use of the phrase "pink slime" as a reference for lean finely textured beef, a meat additive (Sanborn, 2013; ABC News, 2012). ABC's Diane Sawyer, a highly regarded news anchor, and reporter Jim Avila were named in the $1.2 billion lawsuit (ABC News, 2012).

Nightline takes on the dairy industry.

A January 2010 episode of Nightline, ABC's evening news program, prominently featured video of workers abusing cattle on a New York dairy farm. The video was shot by a member of Mercy for Animals, an animal-rights group known for such undercover stings of agricultural operations. Farm employees are shown dehorning older cattle and docking tails with gardening shears. Nightline reporter Brian Ross's narration stated that the aforementioned methods are standard in the dairy industry, and in an interview conducted by ABC, farm owner Lyndon Odell "[explained] that tail-docking and burning off horns are common in the industry and are not abusive of the animals" (Nightline, 2010). Ross did not say whether Odell was shown the video shot on his farm. Dairy industry proponents were quick to point out that although the practices shown—dehorning and tail-docking—are common on dairy farms, the methods and tools used are not.

Katie Couric and farm-raised super-bugs.

In February 2010, CBS Evening News aired a special report on nontherapeutic antibiotic use in livestock that was anchored by Katie Couric, a news journalist well-known from her tenure on NBC's The Today Show. During the seven-minute segment, Couric interviews several Pilgrim's Pride employees who were treated for drug-resistant bacterial infections, allegedly caused by the poultry company's use of antibiotics. Couric tours a hog operation she repeatedly describes as a "factory farm" and questions the farm's owner, a local health official, a veterinarian for the National Pork Board, and a Pew researcher about the possible effects of antibiotic use, at one point citing the results of a study that found methicillin-resistant *Staphylococcus aureus* (MRSA) in 70 percent of tested hogs.

Couric's report raised eyebrows—and the ire of livestock producers across the country. The Animal Agriculture Alliance, a coalition of livestock commodity groups, issued a statement directed at Couric and Sean McManus, the president of CBS News and Sports, criticizing the story's "lack of

balance" (Animal Agriculture Alliance, 2010). Dr. H. Scott Hurd, a former deputy undersecretary at the United States Department of Agriculture and current professor at the Iowa State University College of Veterinary Medicine, released a step-by-step refutation of the claims made in the CBS presentation (Hurd & Raef, 2010). CBS did not directly respond to or acknowledge Hurd's report and additional outreach from the U.S. pork industry.

Purpose and Research Questions

Industry opponents and sympathizers alike have disputed the facts of these and other news stories concerning agriculture, but analysis of the accompanying imagery is scant. *Nightline's* and *CBS Evening News's* segments on animal agriculture provide a wealth of emotionally charged visual material: undercover video of animal mistreatment, interviews with involved parties, footage spliced in by producers. Using a framework built upon visual rhetoric studies, the researchers analyzed the impact of "image bites" in the context of a television news package.

In an effort to address the 2011-2015 National Research Agenda Priority 1: Public and Policy Maker Understanding of Agriculture and Natural Resources, the purpose of this study was to describe the impact of televised images on students' affective responses to a broadcast news story about agriculture. Based on the literature, the researchers posed three primary research questions:

RQ1: Would young people be able to identify the topic of an agriculture-related broadcast news story solely based on images of livestock production?
RQ2: What types of affective responses would young people describe in response to the perceived story topic?
RQ3: What visual cues would young people use to identify the topic of the story?

Methods

To answer those research questions, 122 students enrolled in two agricultural communications courses at a large southwestern public university were shown a series of full-color screen captures, or still images, taken from a broadcast news story (Couric, 2010) about antibiotic-resistant bacteria and their possible link to nontherapeutic antibiotic use in livestock as part of a class exercise on visual communication and rhetoric (see Figure 1). The 15 images were selected from a larger series of screen captures taken from the broadcast because they presented imagery related to livestock production and contained no direct textual or visual evidence (i.e., captions, headlines, or pictures of bacteria) that directly revealed the topic of the story to the survey participants.

An electronic questionnaire was developed using Qualtrics online survey software. The questionnaire gathered demographic data and information pertaining to students' agricultural knowledge, awareness, and experience ([Author], 2010). To ensure that every student was able to complete the questionnaire, students enrolled in a class held in a large lecture hall received a printed paper version, while those enrolled in a computer-lab-based course received the original electronic version. In the questionnaire, each image was followed by a 5-point attitude rating scale that participants used to indicate their affective response to the photo, with 1 indicating a "very negative" and 5 a "very positive" response. After viewing the series of images, the participants were asked to identify the subject of the news story based on what they had seen and to describe the visual cues that led them to choose those particular topics. Participants also explained their affective response to the topic they had chosen.

Figure 1. Images taken from broadcast news story on antibiotic use in livestock in the order shown to survey participants (Couric, 2010).

The open-ended responses were content-analyzed by the researchers. Fraenkel and Wallen (2009) define content analysis as "a technique that enables researchers to study human behavior in an indirect way through analysis of their communications" (p. 472). "Content analysis…involves identifying, coding, categorizing, classifying, and labeling the primary patterns in the data" (Patton, 2002, p. 463). Two methods of content analysis identified by Fraenkel and Wallen (2009) were used to describe the data: frequencies and the percentage and proportion of particular occurrences to total occurrences and the use of themes to organize and explicate findings.

The data were coded and grouped into thematic families of possible topics for the news feature and affective responses to the images. Open-ended responses to the question of visual cues were inserted in Wordle™, an online word-cloud generator. Word clouds are graphic representations of word frequency in a body of text: the size of a term indicates how often it is used, with the largest being the most common. Word clouds, popularized by market researchers, are useful tools for preliminary textual analysis, highlighting points of interest and possible interpretations of textual data (McNaught & Lam, 2010).

Findings
RQ1: Would young people be able to identify the topic of an agriculture-related broadcast news story solely based on images of livestock production?

The survey yielded 91 usable questionnaires, 86 in paper form and five in electronic form, for a 74.6% response rate; the paper questionnaires were entered in Qualtrics to facilitate data analysis. Eighty-nine respondents answered the open-ended question "After viewing the images, what do you believe is the topic of this broadcast feature?"

Six categories emerged from the content analysis: animal cruelty, animal housing, slaughter, factory farming, animal care and/or welfare, and the swine industry. (See Table 1 for examples of each category.) Of the 89 responses, 34.8% (n=31) related to animal cruelty or mistreatment; 20.2% (n=18) related to animal housing; 19.1% (n=17) related to livestock slaughter; 14.6% (n=13) related to animal care and welfare; and 5.6% (n=5) related to factory farming and the swine industry, respectively.

RQ2: What types of affective responses would young people describe in response to those same images?

Eighty-eight participants described their affective response to the topic they discerned from viewing the broadcast screen captures. Six categories were identified following the content analysis of the responses (see Table 2 for examples of each category).

Table 1

Potential Story Topics as Perceived by Student Participants

Theme	Frequency (*N* = 89)	Example
Animal cruelty	31	"Mistreatment of animals/neglect" "Unjust treatment and practice of pig and chicken farming"
Animal housing	18	"The conditions that farming animals live in and the methods used to feed/house them" "The treatment of animals in animal housing facilities before slaughter"
Livestock slaughter	17	"How pigs are slaughtered for food" "Pigs about to get slaughtered"
Animal care/welfare	13	"The care of pigs and their well-being" "The overall treatment of farm animals, particularly swine"
Factory farming	5	"Mass production of pork" "Factory' farming or large scale commercial farming"
Swine industry, pork	5	"Pig farms" "Swine industry"

Table 2

Typology of Participants' Affective Responses to Perceived Story Topic

Response to Images	Frequency (*N* = 88)	Example
Indifference	20	"It's the circle of life. We have to eat. I am neutral"
Negative response	18	"I am very against animal abuse"
Sadness, depression	15	"I feel sad for the pigs"
Necessity	15	"Proper care needs to be enforced immediately
Bias	12	"I feel like that the media has a very biased viewpoint towards the slaughter industry
Desire to learn	8	"I am interested in the real treatment of animals in the food industry and I'd like to know more"

Twenty respondents (22.7%) indicated that they were indifferent about the images. Eighteen respondents (20.5%) described their reactions as negative. Fifteen respondents (17.0%) indicated that the images made them sad or depressed, and the same number said the images were necessary to uncovering abuse and improving animal treatment. Twelve respondents (13.6%) reported the images were biased, while 8 respondents (9.0%) wanted to learn more about the subject based on the images.

RQ3: What visual cues would young people use to identify the topic of the story?

The 86 responses, which consisted primarily of short phrases, to the open-ended query "What visual cues led you to choose this topic?" were entered into Wordle™, an online word-cloud generator to create a graphical representation of visual cues identified by survey participants (see Figure 2).
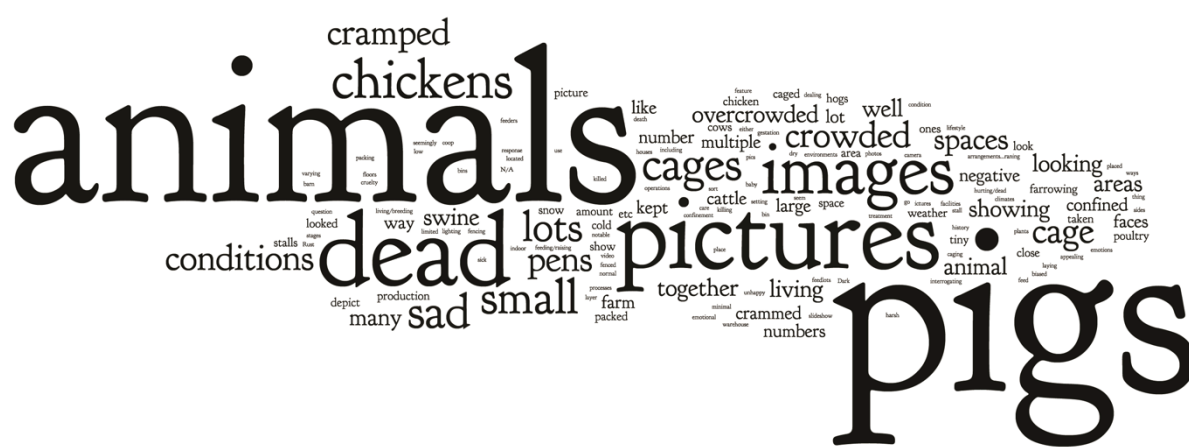

Figure 2. Word cloud of visual cues used by participants to identify story topics. Word frequency is indicated by size.

Terms related to housing conditions were prevalent: small, cramped, crammed, overcrowded, confined, confinement, cage. The images of dead hogs also had a profound impact on the respondents' perceptions of the story topic with dead and death appearing some 18 times. Some respondents used very humanistic terms to describe the visual cues they identified: Piglets were described as baby pigs and sows as momma pigs. Several references were made to the hogs' sad faces, and one respondent compared the conditions to Auschwitz, a Nazi concentration camp during World War II.

Conclusions

Based solely on images taken from the broadcast, no respondents were able to correctly determine that the story's topic was antibiotic use in animal agriculture. To the respondents, the images best corresponded to the subjects of animal abuse or mistreatment, animal housing, slaughter, and factory farming, indicating that the images used in the segment had little connection to the actual topic of the story. Those who selected "animal housing" and "factory farming" came closest to discerning the correct story topic, as the use of antibiotics was tangentially connected to confinement housing in the pork industry. However, the imagery used in the broadcast focused heavily on

the lives of hogs, cattle, and poultry rather than on antibiotics' association with MRSA and other dangerous, treatment-resistant pathogens.

More than one-third of respondents reported negative or unhappy feelings toward the agriculture industry after viewing the images. The participants felt outraged at the animals' treatment and believed that confinement housing qualified as "abuse." Confinement housing has become a hot-button issue for producers, food companies, and consumers: In the last two years, major food distributors, including Smithfield Foods, Hormel Foods, and Kroger, have banned the use of gestation crates and other forms of large-scale housing or promised to discontinue such practices among their producers within the next decade (Carman, 2012). These companies have since been joined by McDonald's, Burger King, and Wendy's — the trifecta of fast-food sales (Carman, 2012). Such public scrutiny of confinement housing may have impacted participants' responses to the images, especially those showing animals in crowded or cramped conditions.

The respondents also expressed empathy toward the animals, with one respondent stating that he or she "felt sorry for" the hogs in the images. Given the proliferation of anthropomorphized animals in entertainment media and advertising — sentient livestock are used to sell everything from fried chicken (the dissident Holsteins that encourage consumers to "eat mor chikin" [sic] from Chik-Fil-A®) and cheese (California Milk Producers' "Happy Cows") to car insurance (Geico's "little piggy") and beer (the famous Budweiser Clydesdales) (Hartlaub, 2010) — such emotional reactions to nonhuman creatures are neither unusual nor unexpected. These responses do, on the other hand, demonstrate the difficulty some consumers have reconciling images of live animals to the meat on their dinner plates.

A number of survey participants believed the images were one-sided or necessitated further inquiry. These respondents indicated a belief that news media present a biased picture of the agriculture industry, one discordant with the realities of food production. Others felt they needed more information to determine their opinions of the images presented and the topic that they assumed the story covered. The survey respondents were university students enrolled in agricultural communications and journalism courses; thus, their interest in further investigation and understanding may be a product of their educational endeavors. The students also represented a wide range of agricultural knowledge and experience, which may have impacted their tendency to identify bias in the images.

The topics selected by the participants reflected the visual cues they identified, many of them dealing with the "lifestyles" of hogs and chickens in production agriculture. The survey participants used adjectives like "overcrowded," "cramped," and "small" to describe housing conditions; the cages used to transport chickens were a strong signifier of animal cruelty. The respondents clearly felt that the housing conditions represented in the news broadcast violated their expectations of quality animal care. Thus, the television "image bites" provided to the students elicited a rhetorical response similar to that expected from animal - rights or – welfare propaganda.

Implications and Recommendations

Based on the results of this analysis, CBS News utilized highly emotional imagery only tangentially connected to the topic in their broadcast story about antibiotic-resistant bacteria and nontherapeutic antibiotic use in livestock. Because of the growing knowledge gap between agriculturalists and those not involved in the food and fiber industry, attention must be paid to visual representations of agriculture in mass media. Broadcast news outlets often use images that will garner

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maximum attention, even when those images do not pertain to the subject at hand, and audiences with little agricultural knowledge may have difficulty determining the credibility or appropriateness of those visuals. Additional research should be conducted on the impact of demographics and agricultural literacy levels on perceptions of media content related to agriculture.

The deployment of controversial visual material is a common practice among broadcast news outlets, which compete for viewers and subsequent advertising revenue, and "if it bleeds, it leads" mantra serves two primary purposes: first, to gain the viewer's attention using scare tactics; second, to persuade the viewer that a solution will appear in the body of the news story (Serani, 2008). These two goals are clearly met by the visual content analyzed in the study. The casual viewer may be led to believe that animals are mistreated, even killed, in confinement housing, and the implied solution is to end the practice altogether. Commodity groups, agricultural advocates, and producers must be prepared to respond to these messages. These individuals would benefit from media training, and they should also increase efforts to build relationships with journalists and editors to provide those media professionals with information and imagery from the perspective of the food and fiber industry.

Finally, the survey respondents humanized the livestock depicted in the images despite their enrollment in a college course related to agriculture. As described above, anthropomorphized animals are popular tropes in entertainment media, and continued exposure to such characterizations may make separating food animals from their talking, wisecracking televised counterparts difficult, especially among young people several generations removed from the farm. Attention should be paid to agriculture-related entertainment media content—particularly material aimed at children and young adults, who represent the next generation of consumers—to help agricultural communicators better understand the development of attitudes toward and beliefs about the industry and how those attitudes and beliefs may be countered.

About the Author

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